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Macrophages of the mucosa-associated lymphoid tissue (MALT) as key elements of the immune response to vitamin D binding protein-macrophage activating factor

Stefania Pacini[1], Tiziana Punzi[1], Gabriele Morucci[1], Marco Ruggiero[2]

[1] Dipartimento di Anatomia, Istologia e Medicina Legale, Università degli Studi di Firenze, Italia
[2] Dipartimento di Patologia e Oncologia Sperimentali, Università degli Studi di Firenze, Italia

Macrophages are key elements of the immune response and vitamin D binding protein-macrophage activating factor (DBP-MAF, also known as GcMAF) has been successfully used in treatment of immunodeficiency (J Med Virol 81:16-26, 2009). Here we report the effects of DBP-MAF on the immune system of HIV/AIDS patients as well as the effects of an original probiotic preparation, putatively containing DBP-MAF. Eight HIV/AIDS patients were treated with 100 ng/week DBP-MAF (from www.gcmaf.eu) i.v. for 15 weeks. During treatment, patients did not assume antiretroviral drugs. Blood monocyte count rose in six patients, indicating a response to DBP-MAF consistent with the effects of DBP-MAF described in Immunol Cell Biol 76:237-44, 1998. Individual response appeared to be associated with vitamin D receptor (VDR) gene polymorphisms (*Bsm*I and *Fok*I). Within the time frame of administration, however, no significant increase in CD4 cell count or decrease in viral load was observed. Therefore, searching for an alternative approach, we tested an original milk-derivative (MAF 3 14®) that contains microorganisms introduced in order to maximize natural DBP-MAF production. We hypothesized that natural DBP-MAF, once ingested, activated the Mucosa-Associated Lymphoid Tissue (MALT) widely diffused in the walls of the entire gastrointestinal tract. In fact, enzymes of certain strains of microorganisms contained in yogurt and kefir are able to convert milk Gc-protein into active DBP-MAF and it is known that kefir modulates the immune response in mice, increasing the phagocytic activity (*i.e.* activating) of peritoneal and pulmonary macrophages (Immunobiology 211:149-56, 2006). It is also known that probiotic yogurt consumption is associated with an increase of CD4 count among people living with HIV/AIDS (J Clin Gastroenterol 44:e201-5, 2010). Thus, members of the research team consumed 125 ml/day of MAF 3 14® for three weeks. Participants did not assume any drug or supplement and did not modify their usual diet and lifestyle. Blood analyses were performed two weeks before beginning consumption, and after three week consumption. After three week consumption, CD4 count dramatically increased in those of us who started with low CD4 count (subject # 1, before consumption CD4: 372; CD8: 206. After consumption: CD4: 609; CD8: 448), or abnormal CD4/CD8 ratio (subject # 2, before consumption: CD4: 857; CD8: 794. After consumption: CD4: 1279; CD8: 640). Also these effects appeared to be associated with VDR gene polymorphisms.

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